

action such as might be caused by the end of a screw against a locating point is often sufficient to throw the work out of its correct position. The interposing of shoes between screws and floating members will prevent any trouble of this kind.

Other points in construction and design will be noted in connection with the examples to be described.

Piston Drill Jig with Floating Clamps. A very good example of a drill jig which is provided with a floating damp to work on a rough surface is shown in Fig. 1, the work being a piston casting *A* which has been previously machined at 5. The body of the jig *G* is of semi-box section and is provided with feet *D* on which it may be rested, both during the loading and when under the drill. A hardened and ground steel stud *E* is let into the casting at one end and serves as a locating point for the machined interior of the piston *H*. A stud *F* is further provided to give the correct location to the wrist-pin bosses,

As the end of the piston is of spherical shape and in the rough state also, it is necessary to provide a means of clamping which will so adjust itself to the inequalities of the casting that an equal pressure will be obtained so that there will be no tendency to tilt the work. A heavy latch *M* is pivoted on the pin *L* and is slotted at the other end to allow free passage of the thumbscrew *N* which is used to damp it in position. A special screw *O* is threaded into the latch, and is ball-ended at *P* so that it has a spherical bearing against the floating clamp (*Q*). The screw *S* keeps it in position, but it will be noted that clearance is provided to allow for the floating movement around the body of the screw. Three pins *K* are set at 120 degrees apart in the face of the floating damp so that a firm thumb-bearing is assured. In order to assist in supporting the work under the pressure of the drill, two spring-pins *V* are provided, these being set in the form of a vertical front end of the piston. They are encased in a screw bushing *W* and are locked in position by means of set-screws, not shown, after they have been allowed to spring up against the piston casting, in order to avoid confusion, in the drawing, one of the pins is shown at an angle of 45 degrees from its actual position.